

A numerical summation of the columns of the above table gives the following:

	Whole number of species.	Straits of Flor- ida, &c.	Southern New England, 1- 30 fathoms.	Northern New England, &c.	Greenland.	Northern Eu- rope, &c.	Mediterranean.
Brachyura	9	4	2	3	1	1	
Anomura	10	1?	1	3	1	2	2
Maerura	13		1	3	1	3	
Schizopoda	4			2	2	3	
Cumacea	1		1	1			
Stomatopoda	1						
Amphipoda	7		3	6	2	5	1?
Isopoda	5			5	1	1	
Total	50	5	8	23	8	15	3

In addition to the above facts in regard to the distribution of the species, it should be added that two of the species, *Lyreidus Bairdii* and *Nephropsis aculeata*, belong to genera heretofore known only from the Pacific region, and each represented there by a single species only; while a third species, *Lysiosquilla armata*, has its nearest known ally in a species known only from the same region.

Of the fifty species enumerated, fourteen are described as new and three others are indicated as probably new; forty-three are here first recorded as belonging to the New England fauna south of Cape Cod; twenty-eight are new to the whole fauna from Cape Hatteras to Northern Labrador; and twenty-one are new to America, including Greenland. Of the forty-three species new to the Southern New England fauna, fifteen are now known also from the New England fauna north of Cape Cod; and of the remaining twenty-eight, four were already known from the Straits of Florida, three from Greenland and Northern Europe, and two from the Mediterranean.

NEW HAVEN, CONN., November 12, 1880.

LIST OF THE FISHES OF THE PACIFIC COAST OF THE UNITED STATES, WITH A TABLE SHOWING THE DISTRIBUTION OF THE SPECIES.

By DAVID S. JORDAN and CHARLES H. GILBERT.

The writers have been engaged during most of the present year (1880) in making investigations of the fish and fisheries of the Pacific coast of the United States, in the interest of the United States Fish Commission and the United States Census Bureau. Extensive collections have been made at each of the principal fishing ports from New Westminster to San Diego.

In the present paper a catalogue is given of the species now known to inhabit the Pacific Ocean between the mouth of Fraser's River on the north and San Diego on the south. The names of the species not

seen by the writers are placed in italics. A vertical column is given for each of the principal localities, and a cross in any column opposite the name of a species indicates that we have obtained or examined, while in the field, specimens from the locality in question. In the last column, S. indicates a general southern distribution, most usually from Point Concepcion or Monterey to Magdalena Bay or Cape San Lucas; N. indicates a general northern distribution, usually from Monterey or Cape Mendocino to Sitka, or beyond; C. indicates the distinctively Californian fauna, the abundance being usually greatest about Monterey and San Francisco. This fauna is chiefly composed of the two viviparous families *Scorpaenidae* and *Embiotocidae*.

It will be noticed that the number of species obtained in Monterey Bay and about San Francisco is considerably greater than at any other points. This is partly due to the fact that these regions have more extensive fisheries than others. There is no doubt, however, that more species of fishes really occur from Monterey to Point Reyes than elsewhere on the coast. Monterey Bay is the common meeting ground of the semi-tropical and semi-arctic fish faunæ. There is nowhere an abrupt change along the coast. The three capes, Flattery, Mendocino, and Point Concepcion, are to some extent points of division.

Name.	Puget Sound.	Columbia River.	San Francisco.	Monterey Bay.	San Luis Obispo.	Santa Barbara.	San Pedro.	San Diego.	Greatest abundance.
1. <i>Mola rotunda</i> Cuvier	+	+	+	...	S.
2. <i>Diodon maculatus</i> Lae	+	+	S.
3. <i>Tetrodon politus</i> Ayres	+	+	S.
4. <i>Hippocampus ingens</i> Grd	+	+	S.
5. <i>Siphostoma punctipinne</i> (Gill) J. & G	+	S.
6. <i>Siphostoma leptorhynchus*</i> (Grd.) Gill	+	S.
7. <i>Siphostoma dimidiatum</i> Gill	+	+	S.
8. <i>Siphostoma californiense†</i> (Storer) Gill	+	+	+	+	+	+	C.
9. <i>Aulorhynchus flavidus</i> Gill	+	+	N.
10. <i>Gasterosteus (aculeatus) serratus</i> Ayres	+	+	N.
11. <i>Gasterosteus microcephalus</i> Grd	+	+	+	C.
12. <i>Aphoristia atricauda</i> J. & G	+	S.
13. <i>Pleuronichthys verticalis</i> J. & G	+	+	C.
14. <i>Pleuronichthys decurrens</i> J. & G	+	+	C.
15. <i>Pleuronichthys coenosus</i> Grd	+	+	+	+	+	+	+	N.
16. <i>Hypsopsetta gnatulata</i> (Grd.) Gill	+	+	+	+	+	+	+	S.
17. <i>Cynicoglossus pacificus</i> Lock	+	+	+	N.
18. <i>Glyptocephalus zachirus</i> Lock	+	+	+	+	+	+	C.
19. <i>Pleuronectes stellaris</i> Pallas	+	+	+	+	+	+	N.
20. <i>Lepidopsetta bilineatus</i> (Ayres) Gill	+	+	+	+	+	+	N.
21. <i>Parophrys ischyurus</i> J. & G	+	+	N.
22. <i>Parophrys isolepis</i> (Lock.) J. & G	+	+	N.
23. <i>Parophrys vetulus</i> Grd	+	+	+	+	+	+	N.
24. <i>Citharichthys sordidus</i> (Grd.) Gthr	+	+	+	+	+	+	+	N.
25. <i>Psettichthys melanostictus</i> Grd	+	+	+	+	C.

* *Syngnathus arundinaceus* Grd.

† *Syngnathus griseolineatus* Ayres.

‡ Nom. sp. nov. = *Pleuronichthys quadriruberculatus* J. & G. Proo. U. S. Nat. Ms. 1880, iii, 50 non

Pleuronectes quadriruberculatus Pallas.

§ *Pleuronectes perarenatus* Cope.

Name.	Puget Sound.	Columbia River.	San Francisco.	Monterey Bay.	San Luis Obispo.	Santa Barbara.	San Pedro.	San Diego.	Greatest abundance.
26. <i>Hippoglossoides exilis</i> J. & G.	+	+	+						C.
27. <i>Hippoglossoides elassodon</i> J. & G.	+	+	+	+	+	+	+	+	N.
28. <i>Hippoglossoides jordani</i> Lock	+	+	+	+	+	+	+	+	C.
29. <i>Paralichthys maculosus</i> Grd.		+	+	+	+	+	+	+	S.
30. <i>Xystreurus liolepis</i> J. & G.		+	+	+	+	+	+	+	N.
31. <i>Hippoglossus vulgaris</i> Flem.	+	+	+	+	+	+	+	+	N.
32. <i>Atheresthes stomias</i> J. & G.		+	+						N.
33. <i>Merluccius productus</i> (Ayres) Gill	+	+	+		+				N.
34. <i>Pollachius chalegrammus</i> * (Pallas) J. & G.	+	+	+	+					N.
35. <i>Gadus morrhua</i> L.	+	+	+						N.
36. <i>Microgadus proximus</i> (Grd.) Gill	+	+	+						N.
37. <i>Brosmophycis marginatus</i> (Ayres) Gill		+							C.
38. <i>Ophidium taylori</i> Grd.		+	+			+			C.
39. <i>Scyatlina cerdale</i> J. & G.	+								N.
40. <i>Lycodopsis paucidens</i> (Lock.) Gill			+						C.
41. <i>Lycodopsis pacificus</i> Collett	+	+							N.
42. <i>Anarrhichthys ocellatus</i> Ayres	+	+	+						N.
43. <i>Lumpenus anguillaris</i> (Pallas) Gill	+								N.
44. <i>Xiphister impenetrans</i> J. & G.	+			+					N.
45. <i>Xiphister mucosus</i> ; (Grd.) Jor.	+		+	+					N.
46. <i>Xiphister chirius</i> J. & G.	+		+	+					C.
47. <i>Cebidichthys violaceus</i> Grd.			+	+	+				N.
48. <i>Anoplarchus electrolophus</i> § (Pallas) J. & G.	+	+	+						N.
49. <i>Apodichthys flavidus</i> Grd.	+	+	+						N.
50. <i>Apodichthys tucorum</i> J. & G.	+	+	+						C.
51. <i>Muraenoides ornatus</i> (Grd.) Gill	+								N.
52. <i>Muraenoides latetus</i> (Cope) Gill	+		+						N.
53. <i>Cremnoabates integripinnis</i> Rosa Smith									S.
54. <i>Gibbonsia elegans</i> Cooper				+		+	+	+	S.
55. <i>Heterostichus rostratus</i> Grd.				+	+	+	+	+	S.
56. <i>Neoclinus blanchardi</i> Grd.				+	+	+	+	+	S.
57. <i>Neoclinus satricus</i> Grd.				+					S.
58. <i>Hypurochilus gentilis</i> (Grd.) Gill						+		+	S.
59. <i>Porichthys porosissimus</i> (Cuv. & Val.) Gthr.	+	+	+	+	+	+	+	+	C.
60. <i>Gobiesox reticulatus</i> Grd.	+	+	+						N.
61. <i>Eumicrotremus orbis</i> (Gthr.) Gill									N.
62. <i>Neoliparis mucosus</i> (Ayres) Steind.			+	+					N.
63. <i>Liparis cyclopus</i> Gthr.									N.
64. <i>Liparis pulchellus</i> Ayres			+	+					N.
65. <i>Aspidophoroides inermis</i> Gthr.									N.
66. <i>Brachyopsis verrucosus</i> Lock				+					C.
67. <i>Brachyopsis xyosternus</i> J. & G.				+	+				C.
68. <i>Podothecus acipenserinus</i> (Pallas) Gill	+								N.
69. <i>Podothecus vulsus</i> J. & G.				+					C.
70. <i>Podothecus trispinosus</i> (Lock.) J. & G.				+			+		C.
71. <i>Bothragonus swani</i> (Steind.) Gill									N.
72. <i>Prionotus stephanophrys</i> Lock				+					S.
73. <i>Ascelichthys rhodus</i> J. & G.	+								N.
74. <i>Psychrolutes paradoxus</i> Gthr.									N.
75. <i>Cottus polyacanthocephalus</i> Pallas	+								N.
76. <i>Artedius lateralis</i> Grd.	+			+	+				N.
77. <i>Artedius notospilotus</i> Grd.	+			+	+		+	+	C.
78. <i>Artedius quadririseriatus</i> Lock	+			+					C.
79. <i>Artedius pugettensis</i> Steind.	+			+					C.
80. <i>Hemilepidotus spinosus</i> Ayres				+	+				C.
81. <i>Hemilepidotus gibbsi</i> Gill				+	+				N.
82. <i>Aspicottus bison</i> Grd.	+			+	+				N.
83. <i>Scorpaenichthys marmoratus</i> Grd.	+			+	+	+	+	+	C.

* *Gadus perisopus* Cope.† *Gadus auratus* Cope; *Gadus morrhua* L. (*fide* Bean.) = *G. macrocephalus* Tiles.‡ *Xiphidium cruentum* Cope.§ *Opidium atropurpureum* Kittlitz = *Anoplarchus crista-galli* Gthr.

Name.	Puget Sound.	Columbia River.	San Francisco.	Monterey Bay.	San Luis Obispo.	Santa Barbara.	San Pedro.	San Diego.	Greatest abundance.
84. <i>Leptocottus armatus</i> Grd.	+								C.
85. <i>Liocottus hirundo</i> Girard.	+	+	+		+	+	+	+	N.
86. <i>Oligocottus globiceps</i> Grd.	+	+	+			+			N.
87. <i>Oligocottus maculosus</i> Grd.	+	+	+						N.
88. <i>Oligocottus analis</i> Grd.	+	+	+						N.
89. <i>Blepsias cirrhosus</i> (Pallas) Gthr.	+	+					+	+	S.
90. <i>Nautichthys oculofasciatus</i> Grd.	+								N.
91. <i>Scorpaena guttata</i> Grd.									S.
92. <i>Sebastichthys nigrocinctus</i> (Ayres) Gill	+		+	+		+	+	+	N.
93. <i>Sebastichthys sericeps</i> J. & G.			+	+					S.
94. <i>Sebastichthys nebulosus</i> (Ayres) Gill	+	+	+	+		+	+	+	N.
95. <i>Sebastichthys chrysomelas</i> J. & G.			+	+					C.
96. <i>Sebastichthys carnatus</i> J. & G.			+	+		+	+	+	C.
97. <i>Sebastichthys maliger</i> J. & G.	+	+	+	+		+	+	+	N.
98. <i>Sebastichthys caurinus</i> (Klunz.) J. & G. var. <i>vexillaris</i> J. & G.	+								C.
99. <i>Sebastichthys rastrelliger</i> J. & G.			+	+		+	+	+	S.
100. <i>Sebastichthys auriculatus</i> (Grd.) Gill	+		+	+		+	+	+	C.
101. <i>Sebastichthys rubrivinctus</i> J. & G.			+	+		+	+	+	S.
102. <i>Sebastichthys chlorostictus</i> J. & G.				+					G.
103. <i>Sebastichthys rhodochloris</i> J. & G.				+					C.
104. <i>Sebastichthys rosaceus</i> (Grd.) Lock				+					C.
105. <i>Sebastichthys constellatus</i> J. & G.				+					C.
106. <i>Sebastichthys ruber</i> (Ayres) Lock	+		+	+		+	+	+	N.
107. <i>Sebastichthys mimetus</i> J. & G.			+	+		+	+	+	C.
108. <i>Sebastichthys pinniger</i> (Gill) Lock	+		+	+		+	+	+	N.
109. <i>Sebastichthys atrovirens</i> J. & G.			+	+		+	+	+	S.
110. <i>Sebastichthys elongatus</i> (Ayres) Gill			+	+					G.
111. <i>Sebastichthys proriger</i> J. & G.			+	+					C.
112. <i>Sebastichthys ovalis</i> (Ayres) Lock			+	+					C.
113. <i>Sebastichthys entomelas</i> J. & G.			+	+					C.
114. <i>Sebastichthys mystinus</i> J. & G.			+	+					C.
115. <i>Sebastichthys melanops</i> (Grd.) J. & G.	+		+	+					N.
116. <i>Sebastichthys flavidus</i> (Ayres) Lock			+	+					C.
117. <i>Sebastichthys paucispinis</i> (Ayres) Gill			+	+					C.
118. <i>Hexagrammus asper</i> * Steller	+								N.
119. <i>Hexagrammus superciliosus</i> § (Pallas) J. & G.	+		+						N.
120. <i>Hexagrammus decagrammus</i> (Pallas) J. & G.	+		+	+					N.
121. <i>Hexagrammus nebulosus</i> (Grd.) J. & G.									N.
122. <i>Ophiodon elongatus</i> Grd.	+		+	+		+			N.
123. <i>Zaniolepis latipinnis</i> Grd.									N.
124. <i>Oxylebius pictus</i> Gill			+	+					C.
125. <i>Myriolepis zonifer</i> Lock			+	+					C.
126. <i>Anoplopoma fimbria</i> (Pallas) Gill	+		+	+					N.
127. <i>Gobius glaucocephalus</i> (Gill) J. & G.									C.
128. <i>Lepidogobius gracilis</i> (Grd.) Gill	+		+						C.
129. <i>Lepidogobius newberryi</i> (Grd.) Gill									S.
130. <i>Gillichthys mirabilis</i> Cooper	+		+			+	+	+	S.
131. <i>Crystallogobius eos</i> Rosa Smith MSS.									S.
132. <i>Trichodon stellifer</i> Cuv. & Val									N.
133. <i>Caulolatilus anomalous</i> (Cooper) Gill				+		+	+	+	S.
134. <i>Bathymaster signatus</i> Cope	+								N.
135. <i>Icichthys lockingtoni</i> J. & G.				+					N.
136. <i>Icosteus enigmatus</i> Lock				+					N.
137. <i>Trachypterus</i> ¶ ? <i>altivelis</i> Kner									N.
138. <i>Hypsypops rubicundus</i> (Grd.) Gill						+	+	+	S.
139. <i>Chromis punctipinnis</i> Cooper						+	+	+	S.
140. <i>Pseudojulis modestus</i> (Grd.) Gthr.					+		+	+	S.
141. <i>Platyglossus semicinctus</i> (Ayres) Gthr.					+		+	+	S.
142. <i>Pimelometopon pulcher</i> (Ayres) Gill					+		+	+	S.

* Nom. sp. nov.—*Sebastodes melanops* Ayres, non *Sebastes melanops* Grd.

† *Sebastosomus simulans* Gill.

‡ *Chirus trigrammus* Cope.

§ *Chirus pictus* Grd.; *Chirus balias* Cope.

|| *Chirus guttatus* Grd. (♀); *Chirus constellatus* Grd. (♂); *Chirus maculoseriatus* Lock. (♀).

¶ Taken at Santa Cruz by Dr. C. L. Anderson, and at Cape Flattery by James G. Swan.

Name.

		Puget Sound.	Columbia River.	San Francisco.	Monterey Bay.	San Luis Obispo.	Santa Barbara.	San Pedro.	San Diego.	Greatest abundance.
143. <i>Abeona minima</i> (Gibbons) Gill				+	+	+	-	-	+	C.
144. <i>Abeona aurora</i> J. & G				+	+	+	+	-	+	C.
145. <i>Cymatogaster aggregatus</i> Gibbons				+	+	+	+	+	+	C.
146. <i>Brachystius frenatus</i> Gill				+	+	+	+	+	+	C.
147. <i>Brachystius rosaceus</i> J. & G				+	+	+	+	+	+	C.
148. <i>Holconotus analis</i> (A. Agassiz) J. & G				+	+	+	+	-	+	C.
149. <i>Holconotus argenteus</i> (Gibbons) J. & G				+	+	+	+	-	+	C.
150. <i>Holconotus agassizii</i> (Gill) J. & G				+	+	+	+	-	+	C.
151. <i>Holconotus rhodoterus</i> Ag				+	+	+	+	-	+	C.
152. <i>Amphistichus argenteus</i> Ag				+	+	+	+	-	+	C.
153. <i>Hypsurus caryi</i> (L. Agass.) A. Agass				+	+	+	+	-	+	C.
154. <i>Ditrema* jacksoni</i> (Agass.) Günther				+	+	+	+	-	+	C.
155. <i>Ditrema laterale</i> (Agass.) Günther				+	+	+	+	-	+	C.
156. <i>Ditrema atripes</i> J. & G				+	+	+	+	-	+	C.
157. <i>Ditrema furcatum</i> (Grd.) Gthr				+	+	+	+	-	+	C.
158. <i>Damalichthys argyrosomus</i> (Grd.) J. & G				+	+	+	+	-	+	C.
159. <i>Rhacochilus toxotes</i> Agass				+	+	+	+	-	+	C.
160. <i>Parephippus faber†</i> (Bloch) Gill										S.
161. <i>Genyonemus lineatus</i> (Ayres) Gill				+	+	+	+	+	+	C.
162. <i>Corvina saturna</i> (Grd.) Gthr				+	+	+	+	+	+	C.
163. <i>Roncador stearnsi</i> (Steind.) J. & G				+	+	+	+	+	+	C.
164. <i>Umbrina xanti†</i> Gill				+	+	+	+	+	+	C.
165. <i>Menticirrus undulatus§</i> (Grd.) Gill				+	+	+	+	+	+	C.
166. <i>Cynoscion nobilis</i> (Ayres) J. & G				+	+	+	+	+	+	C.
167. <i>Cynoscion parvipinnis¶</i> Ayres				+	+	+	+	+	+	C.
168. <i>Seriplus politus</i> Ayres				+	+	+	+	+	+	C.
169. <i>Girella nigricans</i> (Ayres) Gill				+	+	+	+	+	+	S.
170. <i>Scorpius californicus</i> Steind				+	+	+	+	+	+	S.
171. <i>Xenichthys californiensis</i> Steind				+	+	+	+	+	+	S.
172. <i>Pristipoma davidsoni</i> Steind				+	+	+	+	+	+	S.
173. <i>Stereolepis gigas</i> Ayres				+	+	+	+	+	+	S.
174. <i>Serranus clathratus</i> (Grd.) Steind				+	+	+	+	+	+	S.
175. <i>Serranus uehlifera</i> (Grd.) Steind				+	+	+	+	+	+	S.
176. <i>Serranus maculofasciatus</i> Steind				+	+	+	+	+	+	S.
177. <i>Stromateus simillimus</i> (Ayres) Gill	+	+	+	+	+	+	...	+	+	C.
178. <i>Trachurus saurus</i> Raf				+	+	+	+	+	+	S.
179. <i>Caranx caballus</i> Gthr				+	+	+	+	+	+	S.
180. <i>Seriola lalandi**</i> Cuv. & Val				+	+	+	+	+	+	S.
181. <i>Oreynias alalongaft</i> (Gmel.) Risso				+	+	+	+	+	+	S.
182. <i>Sarda chilensis††</i> (C. & V.) J. & G				+	+	+	+	+	+	S.
183. <i>Scomberomorus concolor§§</i> (Lock.) J. & G				+	+	+	+	+	+	C.
184. <i>Scomber pneumatophorus </i> De la Roche				+	+	+	+	+	+	C.
185. <i>Xiphias gladius</i> L									+	S.
186. <i>Remora jacobrae</i> (Lowe) Gill				+	+	+	+	+	+	S.
187. <i>Echeneis naucrates</i> L				+	+	+	+	+	+	S.
188. <i>Anumodytes (tobianus) personatus</i> Grd	+	+	+	+	+	+	...			N.
189. <i>Sphyraena argentea</i> Grd		+	+	+	+	+	+	+	+	S.
190. <i>Atherinopsis californiensis</i> (Grd.) Gill		+	+	+	+	+	+	+	+	C.
191. <i>Atherinops affinis</i> (Ayres) Steind		+	+	+	+	+	+	+	+	C.
192. <i>Leuresthes tenuis</i> (Ayres) J. & G		+	+	+	+	+	+	+	+	S.

* We are informed by Dr. Günther that the pharyngeals in *Ditrema temmincki* are of the normal type as in *Embiotoca*. *Ditrema* is therefore identical with *Phanerodon* Grd., and no character of importance distinguishes "*Phanerodon*" from *Embiotoca*. *Embiotoca argyrosoma* Grd., is identical with *Damalichthys vacca*.

† *Ephippus zonatus* Grd.

‡ *Umbrina undulata* Steind., non Grd.

§ *Umbrina elongata* Gthr.

|| *Otolithus californiensis* Steind.

|| *Otolithus magdalene* Steind.

¶ *Seriola mazatlanica* Steind.

** *Oreynias pacificus* Cooper.

†† *Pelamys lineolata* Grd.

§§ *Chiromitra concolor* Lock.; *Chiromitra* Lock.=*Cybum* C. & V.=*Scomberomorus* Lac.

||| *Scomber diego* Ayres.

Name.	Puget Sound.	Columbia River.	San Francisco.	Monterey Bay.	San Luis Obispo.	Santa Barbara.	San Pedro.	San Diego.	Greatest abundance.
193. <i>Mugil mexicanus</i> Steind.									
194. <i>Tylosurus exilis</i> (Grd.) J. & G.				+					
195. <i>Scomberesox brevirostris</i> Peters				+					
196. <i>Hemiramphus rosa</i> J. & G.				+					
197. <i>Exocetus californicus</i> Cooper				+					
198. <i>Cyprinodon californiensis</i> Grd.									
199. <i>Fundulus parvipinnis</i> Grd.									
200. <i>Myctophum procellarum</i> Bean MSS.									
201. <i>Myctophum crenulare</i> J. & G.									
202. <i>Synodus lucioceps</i> (Ayres) Gill									
203. <i>Paralepis coruscans</i> J. & G.	+		+	+					
204. <i>Sudis ringens</i> J. & G.				+					
205. <i>Alepidosaurus borealis</i> Gill	+								N
206. <i>Osmorus thaleichthys</i> Ayres									N
207. <i>Osmorus attenuatus</i> Lock	+								C
208. <i>Hypomesus olidus</i> (Pallas) Gill									N
209. <i>Thaleichthys pacificus</i> (Rich.) Grd	+								N
210. <i>Salvelinus malma</i> * (Walb.) J. & G.	+	+	+						N
211. <i>Salmo purpuratus</i> Pallas	+	+	+						C
212. <i>Salmo irideus</i> Gibbons									N
213. <i>Salmo gairdneri</i> Rich									N
214. <i>Oncorhynchus kennedyi</i> (Suckl.) Jor	+	+	+						N
215. <i>Oncorhynchus gorbuscha</i> (Walb.) Gill & Jor	+	+	+						N
216. <i>Oncorhynchus keta</i> † (Walb.) Gill & Jor	+	+	+						N
217. <i>Oncorhynchus kisutch</i> (Walb.) J. & G.	+	+	+						N
218. <i>Oncorhynchus tshawytscha</i> (Walb.) J. & G.	+	+	+	+					N
219. <i>Oncorhynchus nerka</i> ‡ (Walb.) Gill & Jor	+	+	+						N
220. <i>Stolephorus ringens</i> (Jenyns) J. & G.	+	+	+	+	+	+	+		S
221. <i>Stolephorus delicatissimus</i> (Grd.) J. & G.									S
222. <i>Stolephorus compressus</i> (Grd.) J. & G.									S
223. <i>Clupea sagax</i> Jenyns									S
224. <i>Clupea mirabilis</i> Grd	+		+	+	+	+	+		N
225. <i>Albula vulpes</i> (L.) Goode				+				+	S
226. <i>Nemichthys avocetta</i> J. & G.	+								N
227. <i>Myrichthys tigrinus</i> Grd									S
228. <i>Ophichthys triserialis</i> (Kaup) Gthr									S
229. <i>Muraena mordax</i> Ayres								+	S
230. <i>Acipenser transmontanus</i> § Rich	+	+	+						N
231. <i>Acipenser medirostris</i> * Ayres	+	+	+						N
232. <i>Chimæra colliæ</i> Bennett	+		+	+					N
233. <i>Manta birostris</i> † (Walb.) J. & G.									S
234. <i>Myliobatis californicus</i> Gill				+	+	+	+	+	S
235. <i>Aetobatis laticeps</i> Gill									S
236. <i>Pteroplatea marmorata</i> Cooper									S
237. <i>Dasyatis dipterurus</i> J. & G.									S
238. <i>Urolophus balleri</i> Cooper									S
239. <i>Raia binoculata</i> Grd. ‡	+		+	+					N
240. <i>Raia rhina</i> J. & G.	+		+	+					N
241. <i>Raia inornata</i> J. & G. MSS. var. <i>inermis</i> J. & G. MSS.	+		+	+					C
242. <i>Raia etellata</i> J. & G.	+		+	+					C

**Salmo spectabilis* Gyr.; *Salmo bairdi*, etc., Suckley; *Salmo callarias* Pallas.

* *Salmo spectabilis* Grd.; *Salmo ba-*

t Salmo scouleri Kich., non Suckl.

Salmo sanguinolentus Pallas; *Salmo tsuppitch* Rich.; *Salmo scouleri* Suckl.

§ Salmo lycaodon Pallas, non Gthr.; Salmo paucidens Rich.

Salmo lágocephalus Pallas; *Salmo canis* Suckl.
Alosa ~~canis~~ brachyrhynchos et acutirostris Ayres

¶ *Acipenser brachyrhynchus*

Raja birostris Walb.; *Manta americana* Bancroft; *Ceratoptera vampyrus* Auct.

† Raia binoculata Grd. = yg. of *Raia cooperi* Grd.

Name.	Puget Sound.	Columbia River.	San Francisco.	Monterey Bay.	San Luis Obispo.	Santa Barbara.	San Pedro.	San Diego.	Greatest abundance.
243. <i>Zapteryx exasperatus</i> J. & G.									S. S. S.
244. <i>Rhinobatos triseriatus</i> J. & G.	+				+				S.
245. <i>Rhinobatos productus</i> Ayres		+					++	++	
246. <i>Torpedo californica</i> Ayres		+	+						C.
247. <i>Squatina angelus</i> Dum.		+	+			+	+	+	S.
248. <i>Somniosus microcephalus</i> (Bloch) Gill	+								N.
249. <i>Squalus acanthias</i> L.		+	+			+			N.
250. <i>Heterodontus francisci</i> (Grd.) Gill.						+	+	+	S.
251. <i>Notorhynchus maculatus</i> Ayres			+	+					C.
252. <i>Hexanchus corinus</i> J. & G.	+		+						C.
253. <i>Catulus ventriosus</i> * (Garman) J. & G.			+			+	+		S.
254. <i>Mustelus hinnum</i> (Blainv.) J. & G.		+	+			+	+	+	S.
255. <i>Rhinotriacis henlei</i> Gill		+	+						C.
256. <i>Triakis semifasciatus</i> Grd.		+	+						C.
257. <i>Galeorhinus galenus</i> (L.) Blainv.		+	+						S.
258. <i>Galeocerdo tigrinus</i> M. & H.		+	+						S.
259. <i>Carcharhinus glauens</i> (L.) Blainv.	+	+							C.
260. <i>Eulamia lamia</i> (Risso) Gill								+	S.
261. <i>Sphyrna zygaena</i> (L.) Raf.									S.
262. <i>Cetorhinus maximus</i> (L.) Blainv.				+					C.
263. <i>Carcharodon carcharias</i> † (L.) J. & G.				+					S.
264. <i>Isurus oxyrinchus</i> Raf.				+				+	S.
265. <i>Lamna cornubica</i> (Gmel.) Flem.				+					C.
266. <i>Alopias vulpes</i> (Gmel.) Bon				+					C.
267. <i>Entosphenus tridentatus</i> (Rich.) Gill									N.
268. <i>Ammocetes plumbeus</i> (Ayres) J. & G.	+	+	+	+					N.
269. <i>Polistotrema dombeyi</i> ‡ (Muller) Gill.			+	+					S.
270. <i>Branchiostoma lanceolatum</i> (Pallas) Gray									S.
Totals	90	14	145	148	43	99	80	83	

Species most abundant northward (Alaskan fauna) 96

Species most abundant centrally (Californian fauna) 76

Species most abundant southward (Lower Californian fauna) 98

Total 270

Species found also in Atlantic Ocean 28

Species not obtained by the Commission 15

Species not recorded by previous writers 66

* *Cephaloscyllium laticeps* J. & G., probably not of Duméril.

† *Carcharodon rondeletii* M. & H.

‡ *Bdellostoma polytrema* Grd.; *Bdellostoma stouti* Lock.

INDIANA STATE UNIVERSITY,
Bloomington, November 30, 1880.